CLAIM AMENDMENTS

Please amend claims 1, 4, 10, 13, 20 as follows:

1. (Currently Amended) A magnetic sensor, comprising:

a ferromagnetic runner having a shape anisotropy ~~an anisotropic shape~~ and locatable relative to a target, wherein said ferromagnetic runner comprises a permalloy material; and

a coil structure wound about said ferromagnetic runner, such that when a magnetic field changes direction along an axial length of said ferromagnetic runner, a voltage is induced in said coil structure that is proportional to a time range of change of a magnetic flux thereof, thereby producing a sudden change in a magnetization vector thereof to create a large time rate of change of magnetic flux density and enable magnetic sensing operations by said magnetic sensor.

2. (Previously Amended) The magnetic sensor of claim 1 wherein said coil structure is wound tightly about said ferromagnetic runner, such that said coil structure possesses a number of turns thereof, which is sufficient to achieve a voltage spike amplitude for an interfacing circuit induced therein when said magnetic field changes direction along said axial length of said ferromagnetic runner.

3. (Previously Amended)The magnetic sensor of claim 1 further comprising a plurality of interconnecting metals for integrating said ferromagnetic runner and said coil structure with an interfacing circuit.

4. (Currently Amended) The magnetic sensor of claim 3 ~~1~~ further comprising a conductive semiconductor layer located beneath said ferromagnetic runner and an insulated metal to thereby integrate said ferromagnetic runner and said coil structure with said interfacing circuit.

5. (Cancelled)

6. (Original) The magnetic sensor of claim 1 wherein said coil structure comprises a single coil tightly wound about said ferromagnetic runner.

7. (Original) The magnetic sensor of claim 1 wherein said ferromagnetic runner comprises a magnetoresistive material.

8. (Original) The magnetic sensor of claim further comprising an interfacing circuit for interfacing said ferromagnetic runner and said coil structure, wherein said ferromagnetic runner and said coil structure are integrated with said interfacing circuit to thereby produce a magnetic sensor for magnetically sensing said target, wherein said magnetic sensor is highly sensitive and operates upon a negligible electrical current.

9. (Previously Amended) The magnetic sensor of claim 1 wherein said voltage induced in said coil structure is equivalent to a number of turns of said coil structure multiplied by a cross sectional area of said ferromagnetic runner multiplied by a rate of change of said magnetic flux with respect to a change of time.

10. (Currently Amended) A permalloy magnetic sensor, comprising:

a permalloy runner having a shape anisotropy ~~an anisotropic shape~~ and locatable relative to a target;

a single coil wound about said permalloy runner, such that when a magnetic field changes direction along an axial length of said permalloy runner, a voltage is induced in said single coil that is proportional to a time range of change of a magnetic flux thereof;

a plurality of interconnecting metals for integrating said permalloy runner and said coil with said interfacing circuit; and

wherein said single coil is wound tightly about said permalloy runner, such that said single coil possesses a number of turns thereof, which is sufficient to achieve a voltage spike amplitude induced at said interfacing when said magnetic field changes direction along said axial length of said permalloy runner, wherein said magnetic sensor is highly sensitive and operates upon a negligible current, thereby producing a sudden change in a magnetization vector thereof to create a large time rate of change of magnetic flux density and enable magnetic sensing operations by said magnetic sensor.

11. (Original) The magnetic sensor of claim 10 further comprising an interfacing circuit for interfacing said permalloy runner and said coil structure, wherein said permalloy runner and said coil structure are integrated with said interfacing circuit to thereby produce a magnetic sensor for magnetically sensing said target, wherein said magnetic sensor is highly sensitive and operates upon a negligible electrical current.

12. (Previously Amended) The magnetic sensor of claim 10 wherein said voltage induced in said coil structure is equivalent to a number of turns of said coil structure multiplied by a cross sectional area of said permalloy runner multiplied by a rate of change of said magnetic flux with respect to a change of time.

13. (Currently amended) A magnetic sensor method, comprising the steps of:

winding a coil structure about a ferromagnetic runner having a shape anisotropy ~~an anisotropic shape~~, such that when a magnetic field changes direction along an axial length of said ferromagnetic runner, a voltage is induced in said coil structure that is proportional to a time range of change of a magnetic flux thereof, wherein said ferromagnetic runner comprises a permalloy runner; and

interfacing said ferromagnetic runner and said coil structure to thereby produce a magnetic sensor for magnetically sensing a target, wherein said magnetic sensor is highly sensitive and operates upon a negligible electrical current, thereby producing a sudden change in a magnetization vector thereof to create a large time

rate of change of magnetic flux density and enable magnetic sensing operations by said magnetic sensor.

14. (Original) The method of claim 13 wherein said coil structure is wound tightly about said ferromagnetic runner, such that said coil structure possesses a number of turns thereof, which is sufficient to achieve a voltage spike amplitude for said interfacing circuit induced therein when said magnetic field changes direction along said axial length of said ferromagnetic runner.

15. (Original) The method of claim 13 further comprising the step of providing a plurality of interconnecting metals for integrating said ferromagnetic runner and said coil structure with said interfacing circuit.

16. (Original) The method of claim 13 further comprising the step of locating a conductive semiconductor layer located said ferromagnetic runner and an insulated metal to thereby integrate said ferromagnetic runner and said coil structure with said interfacing circuit.

17. (Cancelled)

18. (Original) The method of claim 13 wherein said coil structure comprises a single coil tightly wound about said ferromagnetic runner.

19. (Previously Amended) The method of claim 13 wherein said voltage induced in said coil structure is equivalent to a number of turns of said coil structure multiplied by a cross sectional area of said ferromagnetic runner multiplied by a rate of change of said magnetic flux with respect to a change of time.

20. (Currently Amended) The method of claim 13 wherein the step of interfacing said ferromagnetic runner and said coil structure to thereby produce a magnetic sensor for magnetically sensing said target, wherein said magnetic sensor is highly